

WHAT IS CLAIMED IS:

1. A method of searching for a synchronization sequence,
 - 2 comprising:
 - 4 shifting a first string of samples of a received signal into a shift register according to a clock signal;
 - 6 subsequent to the shifting a first string, disabling the clock signal;
 - 8 calculating a first correlation result based on at least a first substring of the first string of samples;
 - 10 subsequent to the disabling the clock signal, enabling the clock signal;
 - 12 subsequent to the enabling the clock signal, shifting a second string of samples of the received signal into the shift register according to the clock signal;
 - 14 calculating a second correlation result based on at least a first substring of the second string of samples; and
 - 16 accumulating a noncoherent sum based the first correlation result and the second correlation result.
 - 2 The method of searching for a synchronization sequence according to claim 1,

wherein the portion of the code vector corresponding to the first
8 correlation result is adjacent to the portion of the code vector corresponding to
the third correlation result.

5. The method of claim 3, wherein each of the first,
2 second, third, and fourth correlation results is based on testing a first search
hypothesis.

6. A searcher comprising:
2 a searcher clock configured and arranged to enable and disable
a clock signal;
4 a shift register configured and arranged to receive strings of
samples of a received signal according to the clock signal and to output
6 different sample vectors at successive transitions of the clock signal; and
a noncoherent accumulator configured and arranged to output a
8 noncoherent sum based on a first sample vector outputted before a disabling of
the clock signal and a second sample vector outputted after the disabling of the
10 clock signal.

7. The searcher of claim 6, the searcher further comprising
2 an integrator configured and arranged to produce a first correlation result
based at least in part on a relation between the first sample vector and a first
4 portion of a code vector and a second correlation result based at least in part on
a relation between the second sample vector and a second portion of the code
6 vector, the noncoherent accumulator being configured and arranged to output a

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noncoherent sum based on the first correlation result and the second
8 correlation result.

8. The searcher of claim 6, the searcher further comprising
2 a coherent accumulator configured and arranged to produce a first coherent
sum based on a plurality of sample vectors outputted before a disabling of the
4 clock signal and a second coherent sum based on a plurality of sample vectors
outputted after the disabling of the clock signal, the noncoherent accumulator
6 being configured and arranged to output a noncoherent sum based on the first
coherent sum and the second coherent sum.

9. The searcher of claim 6, the searcher further comprising
2 an integrator configured and arranged to produce a first correlation result
corresponding to a first search hypothesis and based on the first sample vector,
4 a second correlation result corresponding to a second search hypothesis and
based on the second sample vector, a third correlation result based on a third
6 sample vector outputted before a disabling of the clock signal, and a fourth
correlation result based on a fourth sample vector outputted after the disabling
8 of the clock signal, the third correlation result corresponding to the first search
hypothesis and the fourth correlation result corresponding to the second search
10 hypothesis, and the noncoherent accumulator being configured and arranged to
output a noncoherent sum based on the first, second, third, and fourth
12 correlation results.

10. The searcher of claim 9, the searcher further comprising
2 a coherent accumulator configured and arranged to produce a first coherent
sum based on the first and third correlation results and a second coherent sum
4 based on the second and fourth correlation results, the noncoherent

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accumulator being configured and arranged to output a noncoherent sum based
6 on the first coherent sum and the second coherent sum.

11. A method of searching for a synchronization sequence,
2 comprising:

storing a first string of samples to a sample storage, the first
4 string including a first region, a second region, and an intermediate region
between the first and second regions;

6 loading samples of the first region into a shift register;

testing a search hypothesis on a first sample vector outputted by
8 the shift register and including samples of the first region;

loading samples of the second region into the shift register;

10 testing the search hypothesis on a second sample vector
outputted by the shift register and including samples of the second region; and

12 storing a second string of samples to the sample storage,
including overwriting at least a portion of the intermediate region, no samples
14 of the portion of the intermediate region being shifted into the shift register
between a time of storing the first string and a time of storing the second
16 string.

12. The method of claim 11, further comprising:
2 receiving a radio-frequency signal over a first period; and

receiving the radio-frequency signal over a second period
4 subsequent to the first period, the first string of samples being based on the

signal received over the first period and the second string of samples being
6 based on the signal received over the second period.

13. The method of claim 11, further comprising:

2 accumulating a noncoherent sum based on a result of testing the
search hypothesis on the first sample vector and a result of testing the search
4 hypothesis on the second sample vector.

14. The method of claim 11, further comprising:

2 testing the search hypothesis on a third sample vector outputted
by the shift register and including samples of the first region; and
4 accumulating a coherent sum based on a result of testing the
search hypothesis on the first sample vector and a result of testing the search
6 hypothesis on the third sample vector.

15. The method of claim 11, further comprising:

2 testing the search hypothesis on a third sample vector outputted
by the shift register and including samples of the first region;
4 testing the search hypothesis on a fourth sample vector
outputted by the shift register and including samples of the second region;
6 accumulating a first coherent sum based on a result of testing
the search hypothesis on the first sample vector and a result of testing the
8 search hypothesis on the third sample vector;

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- accumulating a second coherent sum based on a result of testing
- 10 the search hypothesis on the second sample vector and a result of testing the search hypothesis on the fourth sample vector; and
- 12 accumulating a noncoherent sum based on the first coherent sum and the second coherent sum.

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